

REMARKS

This paper is presented in response to the Final Office Action. By this paper, claim 1 is amended. Claims 1-20 are now pending.

Reconsideration of the application is respectfully requested in view of the aforementioned amendments and the following remarks. For the Examiner's convenience and reference, Applicant's remarks are presented in the order in which the corresponding issues were raised in the Final Office Action.

I. General Considerations

A. Claim Amendments and/or Cancellations

With particular reference to the claim amendments, Applicant notes that while claim 1 has been amended, such amendments have been made in the interest of expediting the allowance of this case. Notwithstanding, Applicant, may, on further consideration, determine that claims of broader scope than those now presented are supported. Accordingly, Applicant hereby reserves the right to file one or more continuing applications with claims broader in scope than the claims now presented.

Consistent with the points set forth above, Applicant submits that neither the claim amendments set forth herein, nor any other claim amendments, claim cancellations or statements advanced by the Applicant in this or any related case, constitute or should be construed as, an implicit or explicit surrender or disclaimer of claim scope with respect to the cited, or any other, references.

B. Remarks

Applicant respectfully notes that the remarks herein do not constitute, nor are they intended to be, an exhaustive enumeration of the patentable distinctions between any cited references and the invention, example embodiments of which are set forth in the claims of this application. Rather, and in consideration of the fact that various factors make it impractical to enumerate all the patentable distinctions between the invention and the cited art, as well as the fact that the Applicant has broad discretion in terms of the identification and consideration of the base(s) upon which the claims distinguish over the cited references, the distinctions identified and discussed herein are presented solely by way of example. Consistent with the foregoing, the discussion herein is not intended, and should not be construed, to prejudice or foreclose contemporaneous or future consideration by the Applicant, in this case or any other, of: additional or alternative distinctions between the invention and the cited references; and/or, the merits of additional or alternative arguments.

Applicant notes as well that the remarks, or a lack of remarks, set forth herein are not intended to constitute, and should not be construed as, an acquiescence, on the part of the Applicant: as to the

purported teachings or prior art status of the cited references; as to the characterization of the cited references advanced by the Examiner; or as to any other assertions, allegations or characterizations made by the Examiner at any time in this case. Applicant reserves the right to challenge the purported teaching and prior art status of the cited references at any appropriate time.

II. Rejection of Claims 1-20 under 35 U.S.C. § 103

Applicant respectfully notes at the outset that in order to establish a *prima facie* case of obviousness, it is the burden of the Examiner to demonstrate that three criteria are met: first, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings; second, there must be a reasonable expectation of success; and third, the prior art reference (or references when combined) must teach or suggest all the claim limitations. *MPEP* § 2143.

The Examiner has rejected claims 1-20, of which claims 1, 12, 17 and 18 are independent claims, under 35 USC 103(a) as being unpatentable over US 6,934,740 to Kunst et al. (“*Kunst*”) in view of US 6,373,423 to Knudsen (“*Knudsen*”). Applicant respectfully disagrees.

A. Claim 1

The Examiner has conceded that *Kunst* fails to disclose or suggest the “adjustment circuit” recited in claim 1, but has alleged that *Knudsen* discloses such an adjustment circuit and that modification of the *Kunst* device with the adjustment circuit purportedly disclosed in *Knudsen* would be obvious. *Final Office Action* at 3. With specific reference to the language of claim 1, the claimed adjustment circuit is “...configured to allow the original maximum digital value to be adjusted to an adjusted maximum digital value [that is]...determined by a maximum value of the *analog* electrical signal and to allow the original minimum digital value to be adjusted to an adjusted minimum digital value [that is]...determined by a minimum value of the *analog* electrical signal...”

In contrast however, the passage of *Knudsen* to which the Examiner has referred fails, contrary to the assertion of the Examiner, to make any mention whatsoever of an “adjusted maximum digital value” or an “adjusted minimum digital value.” Rather, *Knudsen* simply provides that “...The reference voltage block 210B dynamically adjusts the sliding voltage range window of the voltage divider tree to ensure that the input analog signal 105 falls within the voltage range window.” *Col. 7, lines 49-53. Emphasis added.*

Moreover, the sliding voltage range window could be quite small, and yet still accommodate the input analog signal “within” that window. The notion that such a window may not embrace a full range of possibilities is disclosed in *Knudsen* where that reference states “...in the embodiment of Fig. 2B, the

sliding voltage range window slides or moves within the larger range of the A/D converter 200B...” *Col. 7, lines 14-17. Emphasis added.* As well, *Knudsen* discloses that in some instances, the input signal may fall outside of the window. See, e.g., *col. 7, lines 56-61*. The foregoing points are germane as well to claim 12, discussed below.

Applicant thus submits that the Examiner has failed to establish that *Knudsen* discloses or suggests setting the range end points to “minimum” and “maximum” digital values such as are recited in the claims. To the extent that the Examiner has failed to establish that *Knudsen* discloses this notion, the Examiner has likewise failed to establish that *Knudsen* discloses the determination of “minimum” and “maximum” digital values by reference to minimum and maximum values of an analog electrical signal. Instead, it would appear that the Examiner has simply assumed that this is the case.

As well, the foregoing points belie the assertion of the Examiner that “...obviously, ‘the adjusted maximum digital value’ and the ‘adjusted minimum digital value’ are determined by the maximum and minimum values of the analog electrical signal...” See *Final Office Action* at 3. *Emphasis added.* In this regard, Applicant submits that that Examiner cannot establish a *prima facie* case of obviousness merely by asserting that a reference “obviously” provides a particular disclosure. Rather, proof and evidence are required to support a *prima facie* case of obviousness. See, e.g., *KSR International Co. v. Teleflex*, 550 U.S. ____, 82 USPQ2d at 1396 (2007).

The rejection is problematic for other reasons as well. Particularly, the Examiner has alleged that the combination of *Kunst* and *Knudsen*, in an attempt to arrive at the invention recited in claim 1, would be obvious because it would produce benefits such as “...reduced chip space and power requirements, reduced noise, reduced capacitance problems...” *Final Office Action* at 3. In this regard, *Knudsen* indicates that such benefits are achieved in connection with the use of a “reduced number of comparators” in the disclosed flash analog-to-digital converters, stating in particular that “...the large number of comparators result in a large amount of chip space, power consumption and noise...since it is necessary to drive the input of all comparators, low impedance results, as well as high frequency noise due to the capacitance of the comparators...The present invention comprises a flash analog-to-digital conversion system...with a reduced number of comparators. The present invention may provide good resolution with reduced chip space and power requirements, as well as reduced noise and capacitance.” *Col. 2, lines 46-61*. Notwithstanding, the Examiner has not provided any evidence whatsoever that such benefits would, or even could, be achieved through the allegedly obvious modification of the *Kunst* device. For example, inasmuch as the Examiner has not shown that the *Kunst* device includes a “large number of comparators,” the allegation of the Examiner that the *Kunst* device would be improved by incorporation of the *Knudsen* converter is mere speculation. Nor has the Examiner provided any evidence to suggest that, even if the

aforementioned results were realized in the modified *Kunst* device, that such results would prove beneficial for that device.

Finally, claim 1 has been amended herein to recite "...an adjustment circuit coupled to the electronic circuit in parallel with the optical detector..." Support for this amendment can be found in the application at, for example, Figure 2. In contrast, the Examiner has not shown that the references, considered singly or in combination, teach or suggest this limitation in combination with the other limitations of claim 1.

In view of the foregoing, Applicant respectfully submits that the Examiner has failed to establish a *prima facie* case of obviousness with respect to claim 1 at least because the Examiner has not shown that there is any suggestion or motivation to make the purportedly obvious combination, and because the Examiner has not shown that the references, when combined in the purportedly obvious fashion, teach or suggest all the limitations of claim 1. Applicant thus submits that the rejection of claim 1, as well as the rejection of dependent claims 2-11 (which each require all the limitations of claim 1), should be withdrawn.

B. Claim 12

Similar to the case of claim 1, the Examiner has rejected claim 12 based upon a purportedly obvious combination of *Kunst* and *Knudsen*. Applicant notes at the outset that the Examiner has failed to assert, much less establish the existence of, a suggestion or motivation for modifying the *Kunst* device with the purported teachings of *Knudsen* in an attempt to arrive at the invention to which claim 12 is directed. Insofar as such motivation is believed by the Examiner to be the same as that set forth in connection with the rejection of claims 1-11, such motivation is lacking for at least the reasons set forth above in connection with the discussion of claim 1. The rejection of claim 12 is problematic for other reasons as well.

For example, the Examiner has alleged that *Knudsen* discloses an "...adjustment circuit configured to allow the initial maximum digital value to be adjusted to an adjusted maximum digital value and to allow the initial minimum digital value to be adjusted to an adjusted minimum digital value thereby defining an adjusted digital range, the adjusted maximum digital value being proportional to a highest anticipated optical value and the adjusted minimum digital value being proportional to a lowest anticipated optical value." *Final Office Action* at 6. The stated rationale of the Examiner is that "...the output is proportional in col. 1, l. 16-28 of *Kunst* and the range values of *Knudsen* would be set to fit this output..." *Id.* *Emphasis added*. However, this rationale clearly suggests that, rather than establishing that *Knudsen* teaches or suggests the aforementioned limitations, the Examiner has simply assumed that *Knudsen* does so. Notwithstanding, the Examiner has provided no basis for this assumption. In fact, the

portions of *Knudsen* relied upon by the Examiner make no reference to establishment of minimum and maximum digital values that are “proportional” to respective highest and lowest optical values, as recited in claim 12. Rather, *Knudsen* simply provides that “...The reference voltage block 210B dynamically adjusts the sliding voltage range window of the voltage divider tree to ensure that the input analog signal 105 falls within the voltage range window.” *Col. 7, lines 49-53. Emphasis added.* As noted in connection with the discussion of claim 1, which is germane as well to the rejection of claim 12, the sliding voltage range window could conceivably be quite small, and yet still accommodate the input analog signal “within” that range. Thus, the Examiner has failed to establish that *Knudsen* discloses or suggests setting the range end points to “minimum and maximum digital values” such as are recited in the claims.

In this regard, it appears that the Examiner may be asserting, at least implicitly, that the definition and adjustment of “minimum and maximum digital values” recited in claim 12 (as well as in claim 1) are inherent in *Knudsen*. Applicant notes, however, that inherency is not readily established. For example, as noted in MPEP § 2112, the Examiner must provide rationale or evidence showing inherency. In particular, “The fact that a certain result or characteristic may occur or be present in the prior art is not sufficient to establish the inherency of that result or characteristic.” *In re Rijckaert*, 9 F.3d 1531, 1534 28 USPQ 2d 1955, 1957 (Fed. Cir. 1993) (emphasis in original). Moreover, the Court of Appeals for the Federal Circuit has noted that “To establish inherency, the extrinsic evidence ‘must make clear that the missing descriptive matter is necessarily present in the thing described by the reference, and that it would be so recognized by persons of ordinary skill. Inherency, however, may not be established by probabilities or possibilities. The mere fact that a thing may result from a given set of circumstances is not sufficient’.” *In re Robertson*, 169 F.3d 743, 745, 49 USPQ 2d 1949, 1950-51 (Fed. Cir. 1999) (emphasis added).

Finally, “In relying upon the theory of inherency, the examiner must provide a basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristic necessarily flows from the teachings of the applied prior art.” *Ex Parte Levy*, 17 USPQ2d 1461, 1464 (Bd. Pat. App. & Inter. 1990) (emphasis in original).

Additionally, or alternatively, Applicant notes that it appears that the Examiner may be relying on personal knowledge as a basis for rejecting claims 1-16, inasmuch as the Examiner has alleged with respect to claim 1 that “...obviously, ‘the adjusted maximum digital value’ and the ‘adjusted minimum digital value’ are determined by the maximum and minimum values of the analog electrical signal...” (*Final Office Action* at 3) and with respect to claim 12 that “...the range values of *Knudsen* would be set to fit this output...” *Final Office Action* at 6. However, and as noted above, the Examiner has not provided any support

for these assertions, nor any references or other materials as being obvious to combine with the purported teachings of *Knudsen*. In view of the foregoing, and pursuant to 37 C.F.R. 1.104(d)(2), Applicant hereby respectfully requests an Examiner affidavit that: (i) specifically identifies any and all reference(s), other than those that have been specifically cited by the Examiner, upon which the obviousness rejection of claims 1-16 is based; and (ii) provides complete details concerning the reasoning and analysis of the Examiner concerning those references as those references are purported to apply to the rejection of claims 1-16. Finally, please note that this request for an affidavit pursuant to 37 C.F.R. 1.104(d)(2) remains in force throughout the prosecution of this case unless expressly withdrawn by the Applicant.

Finally, Applicant notes that, similar to claim 1, claim 12 refers to various maximum and minimum digital values(e.g., an "...adjustment circuit configured to allow the initial maximum digital value to be adjusted to an adjusted maximum digital value..."). However, and as noted above in connection with the discussion of claim 1, the portion of *Knudsen* upon which the Examiner has relied makes no reference to such digital values. Thus, the reliance of the Examiner on *Knudsen* is misplaced.

In view of the foregoing, Applicant respectfully submits that the Examiner has failed to establish a *prima facie* case of obviousness with respect to claim 12 at least because the Examiner has not shown that there is any suggestion or motivation to make the purportedly obvious combination, and because the Examiner has not shown that the references, when combined in the purportedly obvious fashion, teach or suggest all the limitations of claim 1. Applicant thus submits that the rejection of claim 12, as well as the rejection of dependent claims 13-16 (which each require all the limitations of claim 12), should be withdrawn.

C. Claim 17

Similar to the case of claim 1, the Examiner has rejected claim 17 based upon a purportedly obvious combination of *Kunst* and *Knudsen*. Applicant notes at the outset that the Examiner has failed to assert, much less establish the existence of, a suggestion or motivation for modifying the *Kunst* device with the purported teachings of *Knudsen* in an attempt to arrive at the invention to which claim 17 is directed. Insofar as such motivation is believed by the Examiner to be the same as that set forth in connection with the rejection of claims 1-11, such motivation is lacking for at least the reasons set forth above in connection with the discussion of claim 1. The rejection of claim 17 is problematic for other reasons as well.

Inasmuch as claim 17 recites the determination and adjustment of minimum and maximum digital values that are proportional to optical intensity values, the preceding discussion of claims 1 and 12 is germane to claim 17, and the attention of the Examiner is respectfully directed to such discussion.

D. Claim 18

Similar to the case of claim 1, the Examiner has rejected claim 18 based upon a purportedly obvious combination of *Kunst* and *Knudsen*. Applicant notes at the outset that the Examiner has failed to assert, much less establish the existence of, a suggestion or motivation for modifying the *Kunst* device with the purported teachings of *Knudsen* in an attempt to arrive at the invention to which claim 18 is directed. Insofar as such motivation is believed by the Examiner to be the same as that set forth in connection with the rejection of claims 1-11, such motivation is lacking for at least the reasons set forth above in connection with the discussion of claim 1. The rejection of claim 18 is problematic for other reasons as well.

Inasmuch as claim 18 recites the determination and adjustment of minimum and maximum digital values that are proportional to optical intensity values, the preceding discussion of claims 1 and 12 is germane to claim 18, and the attention of the Examiner is respectfully directed to such discussion.

E. “converter 112” of *Kunst*

Applicant notes that the Examiner appears to have taken different positions with regard to the purported correspondence between the “converter 112” of *Kunst* and various claim elements. For example, in one instance, the Examiner has alleged that the converter 112 corresponds to the claimed “electronic circuit.” *Final Office Action* at 2. In another instance however, the Examiner has alleged that *Kunst* discloses an “electronic circuit” (previously asserted to be disclosed in *Kunst* as converter 112) that “includes” an analog-to-digital converter (as recited in claim 8) where, according to the Examiner, the “analog-to-digital converter” of claim 8 corresponds to the converter 112 of *Kunst*. *Final Office Action* at 4.

In light of the reliance placed by the Examiner on the disclosure of *Kunst*, Applicant respectfully requests clarification from the Examiner as to precisely what the Examiner believes to be the correspondence between the converter 112 of *Kunst* and the element(s) of the rejected claims.

CONCLUSION

In view of the amendments and remarks submitted herein, Applicant respectfully submits that each of the pending claims 1-20 is in condition for allowance. Therefore, reconsideration of the objections and rejections is requested and allowance of those claims is respectfully solicited. In the event that the Examiner finds any remaining impediment to a prompt allowance of this application that could be clarified in a telephonic interview, the Examiner is respectfully requested to initiate the same with the undersigned attorney.

Dated this 29th day of January 2008.

Respectfully submitted,

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